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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/612,802	07/02/2003	John M. Lake	RSW920030082US1	5358

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EXAMINER	
ROSE, HELENE ROBERTA	

ART UNIT	PAPER NUMBER
2163	

DATE MAILED: 07/18/2006

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary	Application No.	Applicant(s)	
	10/612,802	LAKE, JOHN M.	
	Examiner	Art Unit	
	Helene R. Rose	2163	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on *4/25/2006*.

2a)☐ This action is **FINAL**. 2b)☒ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *1-26* is/are pending in the application.

4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) *1-26* is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☒ The drawing(s) filed on *02 July 2003* is/are: a)☒ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☐ All b)☐ Some * c)☐ None of:

1.☐ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☒ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☒ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08) Paper No(s)/Mail Date *2 July 2003*.
4) ☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____ .
5) ☐ Notice of Informal Patent Application (PTO-152)
6) ☐ Other: _____.

Detailed Action

1. Claims 1-26 is pending; No claims have been amended nor added, nor cancelled.

2. Applicant's arguments, filed on 4/25/2006, with respect to claims 1-26 have been considered along with the amendment to the specification, claims 1-26 are moot in view of the new ground(s) of rejection.

Claim Rejections – 35 U.S.C 103

3. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

4. Claims 1-26 are rejected under 35 U.S.C. 103(a) as being obvious over Sayag (US Patent No, 6,898,602/Filing Date of Patent: December 10, 2002) in view of Rodriguez et al (US Patent No. 6,725,241/Filing Date of Patent: March 31, 1999).

The applied reference has a common assignee with the instant application. Based upon the earlier effective U.S. filing date of the reference, it constitutes prior art only under 35 U.S.C. 102(e). This rejection under 35 U.S.C. 103(a) might be overcome by: (1) a showing under 37 CFR 1.132 that any invention disclosed but not claimed in the reference was derived from the inventor of this application and is thus not an invention "by another"; (2) a showing of a date of invention for the claimed subject matter of the application which corresponds to subject matter disclosed but not claimed in the reference, prior to the effective U.S. filing date of the reference under 37 CFR 1.131; or (3) an oath or declaration under 37 CFR 1.130 stating that the application and reference are currently owned by the same party and that the inventor named in the application is the prior inventor under 35 U.S.C. 104, together with a terminal disclaimer in accordance with 37 CFR 1.321(c). This rejection might also be overcome by showing that the

reference is disqualified under 35 U.S.C. 103(c) as prior art in a rejection under 35 U.S.C. 103(a). See MPEP § 706.02(l)(1) and § 706.02(l)(2).

Claims 1,10,15,and 24-26:

Regarding claims 1,10,15, and 24-26, although claims 1 and 24 teach a method, claims 15 and 26 teach a computer program product and claims 10 and 25 teach an information handling system. Thus, the following claims 1,10,15, and 24-26 implements the same limitations to carry out the invention.

Sayag teaches a method/computer program product/system for automatically nullifying (column 2, lines 23-29) variables in a middleware computer program (see Figure 1, all features, Sayag), said method/computer program product/system comprising:

one or more processors (column 4, lines 53-57 and column 2, lines 64-65, wherein a data processing system is known as a system that includes computer systems and associated personnel, that performs input, processing storage, output, and control functions to accomplish a sequence of operations on data, Sayag);

a memory accessible by the processors (columns 4-5, lines 65-67 and lines 1-5, Sayag);

a middleware software application that runs on the operating system (column 5, lines 8-10, wherein a middleware software application is known as a communication layer that allows applications to interact across hardware and network environments, Sayag), the middleware application including a garbage collected heap (column 2, lines 29-30, wherein the garbage collector is invoked at each instruction, Sayag); and

a nullification tool for nullifying program references (column 2, lines 64-67, Sayag[1]), the nullification tool comprising steps effective to:

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[1] The Examiner interprets the term "nullification tool" to be an act of nullifying; making null and void; counteracting or overriding the effect or force of something. Therefore the tool utilized within Sayag invention that carries out the same function of a nullification tool is identified within (columns 6-7, lines 66-67 and lines 1-17 and column 8, line 63, Sayag).

reading one or more variables included in one or more activation records included in the computer program (column 5, lines 17-38, wherein reading variable excessive_gc is made and reading variable trace_usage is made, and if variable is set then a display if memory usage is activated and column 6, lines 1-5, wherein one activation record mallocHeapObject is disclosed and a program statement is read from working memory and evaluated, Sayag);

Sayag discloses all the limitations above. However, Sayag does not discloses wherein identifying a program statement where the variable is last used nor does he disclose inserting a nullification statement after the identified program, the nullification statement adapted to nullify the identified last-used variable. On the other hand, Rodrinquez discloses identifying a program statement in the program where the variable is last used (column 6, lines 36-37, wherein the process begins by identifying the oldest least recently used object in use, Rodringuez); and inserting a nullification statement after the identified program, the nullification statement adapted to nullify the identified last-used variable (see abstract, wherein responsive to a determination that the identified object is a candidate, wherein the object is copied to the seldom used object store, in which copied is equivalent to insert, wherein the identified object becomes a relocated object, in which space is freed in the memory occupied by the relocated object which is equivalent to nullification statement, Rodringuez);

It would have been obvious to one of the ordinary skill in the art at the time of the invention was made to modify Sayag system to recognize when a variable was last used within a program. A skilled artisan would have been motivated to do so for allocating more space within memory to store data as well as maintaining memory management in a system.

writing a plurality of program statements (column 6, lines 29-32, wherein a determination is made whether the program statements remain to be written, if the decision step is positive, Sayag), including the identified program statement, to a resulting code file (column 6, lines 20-23, Sayag); and writing the nullification statement to the resulting code file (column 6, lines 20-

23, Sayag) in a position subsequent to the identified program statement (column 3, lines 11-14, wherein after running the garbage collector, and determining the amount of the memory that is still in use of the heap, Sayag).

Claims 2,11, and 16:

Regarding claims 2,11, and 16, the combination of Sayag in view of Rodriguez teaches wherein the means for reading, means for identifying (column 3, lines 15-19, Sayag), and means for inserting are each performed by a compiler (column 5, lines 47-52, wherein a compiler is any program that transfer one set of symbols into another by a set of semantic rules, Sayag).

Claims 3,12,and 17:

Regarding claims 3,12, and 17, the combination of Sayag in view of Rodriguez teaches the computer program product further comprising:

means for writing the activation records, program statement (column 6, lines 29-32, wherein a determination is made whether the program statements remain to be written, if the decision step is positive, Sayag), and nullification statement to a resulting code file (column 6, lines 20-23, Sayag).

Claims 4,13, and 18:

Regarding claims 4,13, and 18, , the combination of Sayag in view of Rodriguez teaches wherein at least one of the variables reference an object stored in a garbage collected memory heap (column 3, lines 1-14, Sayag).

Claims 5 and 19:

Regarding claims 5 and 19, the combination of Sayag in view of Rodriguez teaches wherein the activation records include one or more local variable definitions (column 6, lines 6-9, Sayag).

Claims 6 and 20:

Regarding claims 6 and 20, the combination of Sayag in view of Rodriguez teaches wherein the activation records include one or more argument parameters (column 5, lines 21-22, wherein parameter is defined, Sayag).

Claims 7,14, and 21:

Regarding claims 7,14, and 21, the combination of Sayag in view of Rodriguez teaches wherein the objects are stored in a garbage collected heap stored in a computer memory (column 3, lines 1-14), the method further comprising:

means for executing a garbage collection program (column 2, lines 29-30, wherein the garbage collector is invoked at each instruction, Sayag);

means for identifying (column 3, lines 7-8, Sayag), by the garbage collection program (column 2, lines 29-30, Sayag), one of the objects that was previously referenced by one of the variables included in the nullification statement (column 2, lines 42-44, Sayag); and

means for reclaiming the memory occupied by the identified object (column 2, lines 44-48, Sayag).

Claims 8 and 22:

Regarding claims 8 and 22, the combination of Sayag in view of Rodriguez teaches the computer program product further comprising:

means for executing a compiler to perform the reading (column 3, lines 6-8, wherein executing code of the application and column 5, lines 47-52, wherein a compiler is any program that transfer one set of symbols into another by a set of semantic rules, Sagay);

identifying (column 3, lines 7-8, Sayag) and inserting (column 5, lines 48-52, wherein the application may be installed in a memory as software and column 7, lines 37-38, wherein installed in a development program, Sayag);

means for writing a plurality of program statements including the program statement (column 6, lines 29-32, wherein a determination is made whether the program statements remain to be written, if the decision step is positive, Sayag) to a resulting code file (column 6, lines 20-23, Sayag);

means for writing the nullification statement to the resulting code file (column 6, lines 20-23, Sagay) in a position subsequent to the identified program statement (column 3, lines 11-14, wherein after running the garbage collector, and determining the amount of the memory that is still in use of the heap, Sayag).

Claims 9 and 23:

Regarding claims 9 and 23, the combination of Sayag in view of Rodriguez teaches the computer program product further comprising:

means for identifying one or more statements from the plurality of statements (column 3,lines 15-19, Sayag) where one or more other objects are last used (column 7, line 48, wherein last instruction of the application is identified, Sayag); and

means for writing nullification statements (column 6, lines 29-32, Sayag) for each of the other objects following the identified statement corresponding to the object's last use to the resulting code file (column 3, lines 11-19, Sayag).

Prior Art of Record

1. Sayag (US Patent No. 6,898,602) discloses a method and apparatus for the intensive use of garbage collection in order to determine the exact amount of memory that is consumed by a running application at any point of its execution, wherein a garbage collector executes immediately prior to allocations of memory during execution of a program.

2. Rodriquez et al (US Patent No. 6,725,241) discloses a method and apparatus for freeing space in memory.

Point of Contact

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Helene R. Rose whose telephone number is (571) 272-0749. The examiner can normally be reached on 8:00am - 4:30pm M-F.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Don Wong can be reached on (571) 272-1834. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see http://pair-direct.uspto.gov. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

Helene R Rose
Technology Center 2100
July 5, 2006

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PRIMARY EXAMINER